Source Water Assessment Summary Report: USFS GIANT WHITE PINE CAMPGROUND (PWS# ID2290051) WELL E0005549

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Source water is untreated ground water (aquifers and springs) and surface waters (rivers, streams, and lakes) used to supply drinking water for public water systems. In Idaho there are approximately 1,960 public water systems providing water to almost 1.5 million people. The US Environmental Protection Agency (EPA) requires the Idaho Department of Environmental Quality (DEQ) to assess every public water system source (well, spring, or surface water intake) in Idaho for its relative susceptibility to contaminants that are regulated by the federal Safe Drinking Water Act. There are approximately 3,500 active sources in Idaho. DEQ conducts source water assessments based on an inventory of potential contaminants and land uses within the delineated source water assessment area, construction of the well, sensitivity factors associated with the drinking water source, and local aquifer characteristics. The ultimate goal of each source water assessment is to provide data that communities can use to develop protection strategies for their drinking water sources (source water protection).

The resources and time available to accomplish source water assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. Instead, DEQ uses computer databases and geographic information system (GIS) maps to produce a potential contaminant inventory that can then be verified by the system or other stakeholders with an on-the-ground investigation. If any additional potential contaminants are identified, the system can create a potential contaminant enhanced inventory.

The results of source water assessments should not be used as an absolute measure of risk, nor should they be used to undermine public confidence in the public water system. A particular susceptibility score does not imply any regulatory or safety violations exist or contamination will occur. This report summarizes information about public water systems in Idaho. Using or distributing the data in this report in any other form may inaccurately portray the data.

DEQ strongly encourages each public water system and community to use its source water assessments, combined with local knowledge and concerns, to develop source water protection strategies. Multiple resources are available to help communities implement source water protection programs, including DEQ's Source Water Protection Activity Guide and Source Water Protection Plan Template.

The protection of source water involves many partners. Various governmental entities and organizations play a role in protecting drinking water sources in Idaho and can be a resource for protection efforts. Source water protection activities should be coordinated with these entities to leverage resources and maximize results. For example, activities related to agricultural practices should be coordinated with the Idaho State Department of Agriculture, Idaho Soil and Water Conservation Commission, local Soil and Water Conservation District, and Natural Resources Conservation Service. Visit the Idaho Source Water Collaborative website for more information on potential partners and resources.

For assistance in developing protection strategies, contact DEQ's Lewiston Regional Office or the Idaho Rural Water Association.

This report was completed March 12, 2002. Potential contaminant information was updated on August 16, 2016. Confirmed detections noted in the susceptibility report were updated January 2019 for community and NTNC sources active at the time of the update. (This could result in a change to a source's final susceptibility ranking.)

What Was Assessed

This report evaluates USFS GIANT WHITE PINE CAMPGROUND (PWS# ID2290051) WELL E0005549 located in LATAH county. The system serves approximately 25 people through 1 connections.

Defining the Source Water Assessment Area

The first step of a source water assessment is to delineate the source water assessment area. The delineation process includes mapping the boundaries of the land area above the aquifer that could contribute water and potential pollutants to the water supply. The delineation illustrates the portion of the aquifer that supplies water to the well. Depending on the type of public water system (i.e., community, nontransient noncommunity, or transient noncommunity) and the amount of site-specific data available, one of three methods may be used to delineate a ground water source: (1) a fixed 1,000 foot radius, (2) a calculated fixed radius, or (3) a refined analytical method.

For community systems that serve at least 15 service connections or 25 people year-round in their primary residences (e.g., most cities and towns, apartments, and mobile home parks with their own water supplies) or nontransient noncommunity systems that serve at least 25 of the same persons over 6 months per year (e.g., schools, churches, nursing homes, and factories, and hospitals with their own water source), DEQ uses a refined analytical method approved by EPA to delineate up to three separate time-of-travel (TOT) zones.

The TOT zones illustrate the number of years necessary for a particle of water or contaminant to move from a specific point in the aquifer to the well. The refined analytical method uses site-specific data assimilated from a variety of sources, including well logs and hydrogeologic reports to determine the TOT zones. DEQ may use a calculated fixed radius method for community and nontransient noncommunity systems when site-specific data are not available. Generalized, existing, hydrogeologic data from the major aquifer types in Idaho, and data from the well pump rate are used in the average velocity equation to derive radii for 3-, 6-, and 10-year TOT zones.

The following three TOT zones are mapped:

- Zone I refers to the 0-3 TOT zone and is addressed by two subzones: Zone 1A and Zone 1B.
  - Zone IA refers to the sanitary setback, or the 50-foot radius around the well. The goal of this zone is to prevent contamination from nearby sources, particularly microbial contamination from sewer lines, livestock, surface waters, and septic systems.
  - Zone IB refers to the 0–3 year TOT zone. Water in this zone takes 0–3 years to travel in the aquifer to reach the well.

- Zone II refers to the 3–6 year TOT zone. Water in this zone takes 3–6 years to travel in the aquifer to reach the well.
- Zone III refers to the 6–10 year TOT zone. Water in this zone takes 6–10 years to travel in the aquifer to reach the well.

The source water assessment for WELL was done using the Fixed Radius and is illustrated in the map provided. The data used to determine the source water assessment delineation for WELL are included in the References section or available from DEQ upon request.

Susceptibility Analysis

The susceptibility analysis provides an estimate of the likelihood that the water supply will become contaminated. For each well, spring, or surface water intake in a public water system, susceptibility to contamination is scored as high, moderate, or low. Susceptibility scores for wells take into account three factors, which are described in more detail in later sections:

1. System Construction: Construction of the well being assessed.
2. Hydrologic Sensitivity: Hydrologic and geologic conditions surrounding the well.
3. Potential Contaminant Inventory(PCI)/Land Use: Potentially significant sources of contamination and land uses within the delineated source water assessment area.

Each of the factors listed above receives a score of high, medium, or low to reflect how susceptible the source is to potential contamination. Note that deriving susceptibility scores is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgment. Once completed, susceptibility scores are only updated upon request by the public water system.

PCI/land use scores and final susceptibility scores consist of four individual scores, one for each of four categories of contaminants:

- Inorganic chemicals (IOC) A chemical substance of mineral origin, without carbon in its atomic structure. Examples include nitrate and arsenic. IOCs can be present in drinking water including ground water and surface water.
- Volatile organic chemicals (VOC) Any organic compound that easily evaporates at room temperature. VOCs are emitted by a wide array of products numbering in the thousands. Examples include paints and lacquers, paint strippers, cleaning supplies, pesticides, building materials and furnishings, office equipment such as copiers and printers, correction fluids and carbonless copy paper, graphics and craft

materials including glues and adhesives, permanent markers, and photographic solutions. VOCs may be present in ground water and drinking water.

- Synthetic organic chemicals (SOC) Any manmade organic compound. There are many SOCs, including pesticides, herbicides, and many chemicals with industrial uses. SOCs may be present in ground water and drinking water.
- Microbial contaminants Contaminants that include viruses such as Hepatitis; protozoa such as Giardia; and bacteria such as coliform. Coliform is a bacteria found in the digestive tracts of mammals. Their presence in water can indicate fecal pollution. E. coli is one type of coliform bacteria.

High susceptibility to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The susceptibility scores for WELL are shown in the table below. Click here for full susceptibility score details.

Susceptibility Scores for USFS GIANT WHITE PINE CAMPGROUND (PWS# ID2290051) WELL E0005549									
System Construction	Potential Contaminant Inventory / Land Use				Hydrologic Sensitivity	Final Susceptibility Ranking			
	IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
H	M	M	M	M	M	M	M	M	M
H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility. System Construction refers to the well, spring, or surface water intake.									
Auto High - see below.*			Report Date: 3/12/2002			Click for Map		Click for details	

***Auto-High Score:** Four situations cause automatic assignment of a high susceptibility score: (1) any detection of a VOC or SOC, (2) detection of an IOC at a concentration greater than the drinking water maximum contaminant level (MCL) set by EPA, (3) a confirmed microbial detection at the drinking water source, or (4) the presence of potential contaminant sources within 50 feet of a well. Additionally, ground water sources designated as under the direct influence of surface water (GWUDI) automatically rank high for microbial contaminants due to the inherent nature of surface water bodies as wildlife habitat and residence for various microorganisms. Any of the first three situations will trigger an auto-high score because a

pathway for contamination already exists. Note that MCLs, detections, and potential contaminants can change over time and are not automatically updated in the score. Refer to the susceptibility score details page for more information on the contaminant source or detections resulting in an auto-high score.

System Construction Score

The first of the three factors scored in a source water assessment is the system construction. System construction refers to the construction of the well that serves as the drinking water source. The construction of a well directly affects its ability to protect the aquifer from contaminants. System construction scores are lower when information shows that the design and integrity of the well can help prevent potential contaminants from reaching the aquifer. The system construction score depends on these five components:

1. Compliance with all current construction standards for public water system wells.
2. Condition of the wellhead and surface seal.
3. Placement of the well casing and annular seal into or through at least one continuous low permeability geologic unit of substantial thickness (≥10 feet) reduces the risk of contamination to the aquifer. (Permeability is the ability of a porous medium, such as rock, sediment, and soil, to transmit fluids under a hydraulic gradient; it is a measure of the relative ease of fluid flow under unequal pressure.)
4. Production of water from more than 100-feet below static water level. (Static water level refers to the level of water in a well under normal, no-pumping conditions.) Water drawn from deeper portions of an aquifer is typically buffered from most potential contaminants introduced at the land surface.
5. Location of the well outside of a 100-year floodplain. (A floodplain is flat or nearly flat land along a river or stream or in a tidal area that is covered by water during a flood. The 100-year floodplain is the area likely to be inundated during a flood with a 1% chance of being equaled or exceeded in any given year. DEQ uses data from the Federal Emergency Management Agency to determine the 100-year floodplain for any given area.) Locating wells outside a floodplain can help prevent direct contact between the wellhead and storm, flood, or irrigation water.

Idaho Department of Water Resources' rules regulate well construction ("Well Construction Standards Rules" [IDAPA 37.03.09]). These rules require all public water systems to also follow DEQ's well construction standards ("Idaho Rules for Public Drinking Water Systems" [IDAPA 58.01.08.510]). DEQ standards include screening requirements, depth of annular seal, use of a down-turned casing vent, and casing thickness, height, and depth. Current construction standards for public water system wells can be more stringent than standards in effect when a well was constructed, so your system construction score may be higher due to not meeting current well construction standards.

Your system construction score may also be higher if adequate information about the well is not available. Refer to the susceptibility score details page for more information about the construction of the well assessed in this report.

Hydrologic Sensitivity Score

The second of the three factors in a source water assessment is hydrologic sensitivity. Hydrologic sensitivity considers how easily or quickly water moves through the subsurface of the earth. A well's hydrologic sensitivity score depends on the following:

1. Composition of surface soil. Soil drainage classes (defined in soil surveys published by the NRCS in 1998), ranging from poorly drained to moderately drained, such as silt and clay, are deemed more protective of ground water than moderately to well drained soils, such as sand and gravel, which drain faster.
2. Material in the vadose zone (the zone between the land surface and first encountered water). Vadose zone materials comprised of gravel or fractured rock provide less protection from contamination than finer-grained sedimentary materials.
3. Depth at which ground water is first encountered. All other factors being equal, a greater depth to ground water provides greater opportunity for the attenuation of potential contaminants through adsorption and other mechanisms.
4. Presence of a low permeable unit (a layer of rock or sediment that does not transmit water easily, thus protecting the aquifer from contamination). For susceptibility scoring, DEQ considers a low permeable unit to be present if there is >50 feet of cumulative thickness of silt or clay-rich geologic materials, or fine grain sedimentary interbeds within basalt settings above the bottom of the annular seal to be protective of the aquifer.

Refer to the susceptibility score details page for more information on the hydrologic conditions for this source.

Potential Contaminant Inventory/Land Use Scores

The last of the three factors scored in a source water assessment is the potential contaminant inventory (PCI)/land use. A potential contaminant is defined as any facility or activity that meets these criteria:

- Stores, uses, or produces, as a product or by-product, the contaminants regulated under the federal Safe Drinking Water Act.
- Has a potential for releasing the contaminants at levels that could potentially harm drinking water sources.

As part of each source water assessment, DEQ conducts an inventory of potential sources of contamination. The goal of the inventory is to locate and describe facilities, land uses, and environmental conditions that are potential sources of ground water contamination.

The inventory is a two-step process. First, DEQ identifies and documents potential contaminant sources in the source water assessment area using computer databases and GIS maps developed by DEQ and various state and federal agencies. Although DEQ uses the best information available, DEQ does not make any warranty regarding the accuracy or completeness of any information or data provided. For example, DEQ may not be able to obtain the exact location for each potential contaminant or may not be notified immediately of new sites or changes to existing sites. DEQ updates PCIs when new information warrants an update. The exact date inventories are updated is found in the PCI table. Second, the public water system receives a draft copy of the source water assessment and can provide comments to DEQ to correct or expand on the inventory. Although the public water system is only contacted by DEQ after the initial PCI is

conducted, the public water system can review the PCI and submit corrections to DEQ at any time. Comments can be submitted to DEQ.

When agriculture is the predominant land use within the delineation, the likelihood of agricultural chemicals, such as fertilizers and pesticides, entering the ground water system may increase. This results in more points assessed for the IOC and SOC categories in the 0-3 year TOT zone. Additionally, depending on the percentage of agricultural land in each TOT, PCI/land use susceptibility scores may be influenced.

When the 0-3 year TOT zone intersects an area of defined ground water degradation, such as a nitrate priority area, additional points are assigned to the PCI/land use section of the susceptibility score. Nitrate is one of the most widespread ground water contaminants in Idaho. High levels of nitrate in drinking water are associated with adverse health effects. Therefore, DEQ designates areas with degraded ground water quality due to nitrate as nitrate priority areas with the goal of developing and implementing management strategies with local stakeholders to improve ground water quality.

Understanding Potential Contaminant Source Information

The presence of a potential source of contamination means that the potential for contamination exists due to the nature of the business, industry, or operation. A release is less likely to occur from a potential source of contamination, when the facility or landowner uses best management practices to manage the potential contaminant. Many potential sources of contamination are regulated at the federal or state level, or both, to reduce the risk of release. Therefore, when businesses, facilities, or properties are identified as potential contaminant sources, it does not mean that they are violating any local, state, or federal environmental law or regulation.

The table below lists the potential contaminants for WELL public water system. The public water system is not located within a nitrate priority area.

PWS Name: USFS GIANT WHITE PINE CAMPGROUND (PWS# ID2290051)
Source Number: E0005549
Source Name: WELL
Potential Contaminants:

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TOT [1]	Description of Potential Contaminant Source [1, 4]	Potential Contaminant(s)	Name	Data Source [2]	Updated Date [3]
0-3 year	**Major And Minor Roads**				
0-3 year	Surface Water	Site specific	Mannering Creek	GIS	3/15/2013

Footnotes:

1. The GIS datasets used to identify potential contaminants are gathered from various state and federal agencies and are updated on different intervals.
2. During the first phase of the PCI, known as the primary contaminant inventory, DEQ staff use GIS datasets and aerial photos to identify and document potential contaminant sources within the water system's source water assessment delineation. During the second phase of the PCI, known as the enhanced inventory, potential contaminants not already identified through GIS (e.g., septic systems, business sites, and land use activities) can be added to the PCI.
3. Date Updated refers to the most recent date each potential contaminant was last verified within the GIS datasets. PCIs are updated when new information warrants an update. Potential contaminants identified through aerial photos or enhanced inventories are updated less often.
4. Restriction of Liability for GIS Data: Neither the State of Idaho nor DEQ, nor any of their employees make any warranty, express or implied, or assume any legal liability or responsibility for the accuracy, completeness or usefulness of any information or data provided. Metadata are provided for all datasets, and no data should be used without first reading and understanding its limitations. The data could include technical inaccuracies or typographical errors. DEQ may update, modify, or revise the data used at any time, without notice.

* TOT = time of travel zone | The number of years necessary for a particle of water to travel in the aquifer to reach a well.

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Refer to the susceptibility score details page for more information about the potential contaminants and land use within this delineation.

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PCI Dataset	Update Frequency
Agricultural Chemicals	as needed
Agricultural Land Use	as needed
CAMEO	annually
CERCLA	as needed
Dairies	as needed
Deep Injection Wells	annually
Drain Locations	as needed
Feedlots	as needed

Floodplains	as needed
Lakes	as needed
Landfills	as needed
Mine Sites	as needed
Nitrate Priority Areas	quinquennially
NPDES Locations	annually
Phosphate Mines	as needed
Railroads	matches ESRI software update releases
RCRA Sites	annually (usually March-April)
Remediation Sites	as needed
Rivers	as needed
Road Salt Locations	as needed
Roads	matches ESRI software update releases
Shallow Injection Wells	annually
Soil Drainage Class	as needed
Toxic Release Inventory	annually
UST/LUST Sites	as needed
Wastewater Lagoons	as needed

Conclusion

Local communities can use the information gathered through the assessment process to create a broader source water protection program to address current problems and prevent future threats to the quality of their drinking water supplies. Preventing contaminants from entering the public water system source can minimize health risks, expanded drinking water monitoring requirements, additional water treatment requirements, or expensive environmental cleanup activities. For assistance developing protection strategies, contact DEQ's Lewiston Regional Office or the Idaho Rural Water Association. Also consider the following resources:

- Idaho Source Water Protection Website
- Idaho Source Water Protection Activities Guide
- Idaho Source Water Protection Planning Tool
- www.protectthesource.org